RPM 2011-12 End-of-Year Report

(and Summer Institute 2012 Preparation)

**Due Date: July 11, 2012**

This year’s end-of-year RPM report is essentially an “end-of-grant” reflection report as well; it will provide important documentation for our summative report for the overall project and will also serve a secondary role as a useful preparation process for the Summer Institute. While clearly one person will need to take the lead on assembling and synthesizing what goes into the final submission, we hope that rather than something written entirely by a single person in isolation, the report will reflect contributions from the core college team involved in the RPM work, and if possible include perspectives even from faculty who may have only been marginally involved (and who may have questions or concerns about the work) in order to surface critical themes/ideas in the areas below.  
  
**Section 1: Reflections on the Project Overall**  
For each of the subsections A to D below, address both the major successes you’ve had in the work to date as well as any significant challenges you’ve encountered with respect to the particular aspect of the work being described.  
  
**A.     Summarize briefly the specific “structural” changes (e.g., changes in course content, number of courses offered, placement approaches, etc.) you implemented in your developmental math program (or in specific courses) as part of your college’s involvement in the Re-Thinking Precollege Math project.**  
  
Math 081 (Basic Math) – Every quarter, we offer one section of Math 081 linked with HDC 125, which is taught by one of our counselors. HDC 125 is a math study skills class that helps students understand their learning style, manage their math and test anxieties, improve their study skills, etc. in order to advance their math performance. There are some students who definitely benefit from the link. However, because of scheduling conflicts, some students are forced to enroll in this link. It then becomes a challenge to teach students who are not interested in the HDC portion of the link. Analysis of this link’s success rate is still incomplete but we will continue to offer this link as it has become a top priority of the President of NSCC as part of his larger agenda.  
  
Math 084 and 085 (Beginning Algebra I and II) – We are changing the textbook starting Fall 2012 from a very traditional text to a book that blends a traditional approach with more contextual material. We hope this change will get more faculty to try some of the RPM initiatives and ideas discussed at Reflection Friday to deepen student understanding. We also began offering a Math 084/085 combination course every quarter, including summer, as a 10-credit class, meeting 2 hours each day for students who wish to and are able to do an intense course of Beginning Algebra. This course helps move student into college level math in 2 quarters.   
  
Math 097 (one-quarter Beginning Algebra) – We continue to offer this fast-paced 5-credit class every quarter, for those who can do Beginning Algebra in one quarter. With all the changes we have done in our Beginning Algebra course, we have kept this class both on-campus and online. We find that there is a group of students who benefit from this fast-paced structure and can successfully move into Intermediate Algebra and be done with precollege math in 2 quarters. We are also changing the textbook and will be using the same text as Math 084 & 085.   
  
Math 098 (Intermediate Algebra) – We have been offering a science-math hard link course every fall and spring quarter for the past 2 years. It started as a link with a non-lab Environmental Science. This Fall 2012, it will be linked with a lab-based Environmental Science course. In Spring 2012, we experimented with Chemistry 139 and Math 098. Although Chemistry has a prerequisite of Math 098, we made it a co-requisite which turned out to be very attractive for students but not a great idea for creating joint activities. The chemistry that was needed to do relevant math problems got in the way of linking both subjects. Also, Chemistry 139 is a preparatory course for the science major chemistry sequence and as such it has a long list of expected material that needed to be covered, leaving little room for linking activities on a daily basis. We do not expect to offer a Chem 139/Math 098 link in the near future. However, we are in the process of developing a link with Astronomy and we are planning to offer it in Spring 2013. We believe that this will be a better match as Astronomy is a stand alone course, which gives more flexibility with integrating both curriculums.

**B.      Reflect on the role that your institutional and departmental context (e.g., leadership issues, department-wide policies and decision-making, use of and support for part-time faculty, where the precollege math program is housed, whether the college administration is visibly and effectively supportive of innovations in pre-college programs, etc.) played in shaping the work you did in RPM and influencing the progress you’ve made in your project. In what ways have you specifically taken these contextual factors into consideration in addressing your work in the RPM project?**  
  
The whole RPM project at North is faculty-driven. Though administration is supportive of the work we do, there is very little administrative involvement beyond visits to Reflection Friday.  Most ideas have come from faculty, full-time and part-time. Faculty drives the direction of RPM project with funding from RPM grant.  
  
At North, the precollege math is housed in the Math & Science Division. There is a concerted effort to make sure that faculty, both full and part-time, teach across the spectrum. In addition, practically all full-time faculty moonlight. As such, North maybe one of the few colleges where the faculty is very aware of the challenges and needs of day and night students, on-campus and online students, precollege and college transfer students. The work that we do is extended to benefit the whole college community. This is an asset shared by only a few other colleges.

**C.      The RPM project as a whole made an effort to promote and support faculty efforts to a) explore different concrete classroom practices and strategies around teaching and assessment and b) inquire collectively about the results of those efforts. To what extent and in what ways have any changes in instructional practices and collaborative inquiry occurred in the precollege math program at your college as part of your RPM project?**  
  
Before the grant, if any of us did anything innovative, it might only be made known to a handful of other faculty members. Follow-up on what worked and what did not was spotty at best. Most of us blame students and the amount of material to be covered as the culprit to our low success rate. With the grant, we have gained a new perspective on how students learn. We have learned how to better assess what we teach and modify how we teach. With our regular Reflection Friday gathering, we have become more responsive to student needs, more purposeful in engaging students and more deliberate in our focus on conceptual understanding. We have constantly exchanged ideas on activities and applications used in class. We have shared student work to evaluate what “good” work means and how to make our expectations clear to students in this regard.  
  
In writing and grading our pretest and common core finals as a group, our conversations have shifted from directionless test questions to more in-depth and piercing questions such as:

* what do we want our students to know when they get out of a particular course
* how we can tell whether we have achieved that goal or not
* what core topics should students know coming out of the class
* how can we tell if a student really understood a concept or not

**D.     How, if at all, have any of the activities you’ve done in your precollege math program as part of the RPM project incorporated a focus on student attributes and perspectives as math learners?**  
  
There has not been a concerted focus by the department on student attributes, though some faculty have done their own activities in this area. We have been focused on improving our teaching techniques to increase student success this past year.  As we enter the final months of this grant, an additional task has been identified as an area for discussion and improvement.  Student attributes, specifically helping students become independent learners and instilling confidence (not a false confidence) in their mathematical ability is an area we would like to pursue. There is a lot of interest in the department to look at student attributes/perspectives this coming year. We can also use some help and guidance on how to instill confidence and shape independent learners.  
  
  
**Section 2: Sustainability and Next Steps**  
  
**A.     What aspects of the changes in your precollege math program initiated and/or support by the work of the RPM project do you foresee being sustained at your college beyond December 2012 without the infusion of any new external grant support?**  
  
Reflection Friday will continue without the infusion of any external grant support. The math faculty find Reflection Friday very energizing and look forward to its continuance.  
  
Pretests and Common Core Final Exam will also continue without the infusion of any external grant support. We are in the process of streamlining these tests such as going towards conceptually-based multiple choice questions to better target deeper understanding and to save faculty time in grading.  We see these tests as a valuable tool to find out what students learn and retain. We hope to use the results of these tests to refocus what we to teach and how we teach.  
  
Hard-linked courses that have been developed through the RPM grant such as those in science and Math 098 and HDC and Math 081 will continue. There seems to be faculty and student interest particularly in the science/Math 098 link. As the RPM grant winds down, North has been fortunate to be the recipient of two more grants. In particular, the Math 098/Science hard link will continue with the infusion of NSF money through the “Ready, Set, Transfer” grant. The Math 081/HDC link will be funded by the Gates-funded “Pathways to Completion” grant. What was started through the RPM grant is now being incorporated and continued through the new grants received.

**B.      If new grant resources (comparable to the RPM level of funding at a minimum) were available, what specific activities would you want to extend or initiate to continue your efforts to address improving student progress and success in your precollege math program?**  
  
The retreats with other colleges have been very valuable. Not only were we taken out of our college setting into a more relaxed atmosphere but the gathering, exchange of ideas, information on the different initiatives and in particular, professional development activities such as short assessment techniques, group work and other best teaching and learning practices have enhanced the way we teach.

With additional funding, we would like to develop more hard links between Math 098 and the other courses. In particular, faculty have shown interest in doing a Math/Physics and Math/Economics link. The links are a quick way of developing rich, contextual applications where the usefulness of algebra becomes immediately apparent.